

mppt algorithm

```
1
2  const int voltagePin = A0;
3  const int currentPin = A1;
4  const int pwmPin = 9;
5
6  float previousPower = 0;
7  float previousVoltage = 0;
8  float stepSize = 0.1;
9
10 void setup() {
11     pinMode(pwmPin, OUTPUT);
12     Serial.begin(9600);
13 }
14
15 void loop() {
16     float voltage = analogRead(voltagePin) * (5.0 / 1023.0) * (30.0 / 10.0);
17     float current = (analogRead(currentPin) - 512) * (5.0 / 1023.0) / 0.185;
18     float power = voltage * current;
19
20     if (power > previousPower) {
21         // Increase voltage if power has increased
22         analogWrite(pwmPin, min(255, analogRead(pwmPin) + stepSize));
23     } else {
24         // Decrease voltage if power has decreased
25         analogWrite(pwmPin, max(0, analogRead(pwmPin) - stepSize));
26     }
27
28     previousPower = power;
29     previousVoltage = voltage;
30
31     Serial.print("Voltage: ");
32     Serial.print(voltage);
33     Serial.print(" V, current: ");
34     Serial.print(current);
35     Serial.print(" A, Power: ");
36     Serial.print(power);
37     Serial.println(" W");
38
39     delay(1000);
40 }
41
```